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Prof. E. R. A. Seligman

**NORFOLK SOUTHERN RAILROAD
ATLANTIC & NORTH CAROLINA RAILROAD
CARTHAGE & PINEHURST RAILROAD**

**COMMENTS ON THE
FEDERAL VALUATION REPORTS**

ENGINEERING AND LAND DIVISIONS

BY

F. L. NICHOLSON, Chief Engineer

**OFFICE OF
GENERAL SECRETARY
PRESIDENTS' CONFERENCE COMMITTEE
PHILADELPHIA, PA.**

Ms B 12.6.2.17

NORFOLK SOUTHERN RAILROAD.

In discussing the Valuation Report on the Norfolk Southern Railroad Company, we will begin with the study of the text of the Engineers' Report accompanying the detailed sheets.

Mileage.

The tabulated statement, beginning on pages 2 and 3 of this report, represent the Norfolk Southern mileage for side track, second track and main line to be equivalent to 940.837 miles, whereas this company's records, based on the same surveys, indicate the mileage to be 957.77. This difference is largely made up in side-track mileages from various valuation sections. We have no record of any exclusion of side tracks belonging to, or claimed by this company, as their property. We have furnished our claims in reference to all matters that have been in question, and our belief was, that these side-track mileages would be allowed.

Construction Divisions.

The three general construction divisions into which the road has been divided by the report are:

The Northern Division, extending from Norfolk to Chocowinity, with its branch lines.

Central Division, extending from Chocowinity eastwardly, embracing the line to New Bern and all branch lines, to Cape Fear River, west of Varina.

Western Division, main and branch lines between Cape Fear River and Charlotte, N. C.

These are natural divisions, and the work could be satisfactorily handled. However, for the best results, one of these divisions would necessarily be divided into two subdivisions, because of natural obstacles.

The construction north of Albemarle Sound, and embracing the Albemarle Sound Bridge, could better be handled as one subdivision; and the construction from Mackeys Ferry and branch lines and the bridge over Pamlico River, near Washing-

ton, could be embraced in the second. Because of the importance of the trestles on the Albemarle Sound, the Pamlico River, the Neuse River, the Trent River and at Beaufort and similar points, it would appear that resident engineers would be required at these points. The engineering force, as outlined in the construction program, should be increased.

Time.

The time allowed for reconstruction, namely, two years, is insufficient. Assuming this road as non-existent, and the traffic conditions as of 1912 to 1914, the delay in handling materials will be very great; much materials will have to be sent in and stored at delivery points; freight rates will be high because of the necessity of handling materials long distances by rail; many delays will be encountered in getting plant to site of work, and because of difficulties in getting material deliveries and the distribution of same. Our belief, borne out by experience in the particular section of country through which this road passes, and based on time consumed necessarily in similar work on this line, is that not less than four years, after reconnaissance and location is completed, should be allowed for the completion of the lines.

Not less than two years will be required for the grading and bridge building; the track-laying and surfacing will require at least six months after grading is completed, and one and one-half years will not be too much time for ballasting and the erection of buildings, etc. It is assumed that buildings, water and fuel stations, power plant, etc., will be constructed as soon as track is laid for transportation of materials. It is hardly possible to do this. Time must be had for the study of the country from a traffic standpoint and the decision as to the character of buildings and their extent and the location of stations, and like studies must be made of location for water and fuel stations, sources of water supply must be investigated, and these will not be, and are seldom, erected immediately after the laying of the track.

This ballasting could not on this company's lines follow immediately behind track-laying. It will be noted that at many points on the lines cinders are used. These cinders must be

secured and sent from distant points. The sand used on some of the lines, which are constructed entirely through clay countries, was hauled long distances. There is no similar material on the lines. The tracks leading from these sources of supplies must be constructed before the track could be ballasted in a similar manner; this would preclude the possibility of ballasting immediately after track-laying. The system would necessarily be to surface the track roughly, with the best material at hand, so that construction trains could operate safely; after the road was completed to the sources of supply, the ballasting material would then be hauled; one year is not too much to allow for this.

Material Handling.

In the handling of materials, Norfolk would of necessity be the main receiving point for the Northern Division, because of its availability, both by water and rail.

The points of receipt of material would be at Berkley Ward (Norfolk), Suffolk, Plymouth and Washington.

At Skinner's Point and Mackeys would be located material yards for Albemarle Sound Bridge, but it is not probable that materials for this bridge would be received by water.

When the bridge was constructed, the contractor found it necessary, by reason of the shoal places in the Albemarle and Chesapeake Canal, eight and one-half feet depth of water, the Croatan Sound, seven to nine feet water, and North River, eight feet water, and uncertainties of navigation, to receive all of the material used in the construction at Norfolk, from which point it was transported by rail. Under the reconstruction program, the bulk of this material would probably be received from Southern points by vessel at Norfolk, and from there transported by rail over the Norfolk Southern new lines, seventy-seven miles to Skinner's Point, or from Plymouth, N. C., by the new lines, eleven miles to Mackeys Ferry. The inland waterway carries twelve feet depth of water from Beaufort, N. C., to Albemarle Sound since January, 1911, while Norfolk, through the Albemarle and Chesapeake Canal, the minimum water depth is eight and one-half feet. The difficulties and delays for entry through Beaufort Inlet, due to narrow channels and shoals, must be given serious consideration.

On the Central Division the materials for the construction of the Beaufort trestle would probably be received by water from southern points. It is suggested, that from these numerous storage points, where the company's present tracks are intersected by other lines, that the material can be delivered and moved over the new tracks as they are laid; this to include culvert pipe and bridge material. If this plan is followed, the construction work will be seriously delayed, and the cost will be increased. It is not practical to handle culvert pipes over the tracks as the track-laying progresses; except for the small opening, it will either necessitate the construction of temporary work over the openings or the track work will be greatly delayed. In the actual construction of this company's lines the bridge material for the most important steel bridges were hauled over the Norfolk Southern tracks after they had been laid. We found that progress was very much delayed and that there was not a continuous performance. The work for track-laying was frequently stopped, sometimes for several weeks at the time, waiting for bridge material. These delays appear not to have been taken in account for the estimate for time of reconstruction. It is frequently cheaper to haul material by wagons and other means than to provide temporary work for openings. In order to complete the construction within the time allotted it would not be possible to depend on the steam shovel working out from junction points. It was demonstrated clearly on this company's lines, that by reason of natural divisions, shovels had to be frequently hauled over many miles through the country to points they were to work; this, of course, is an added expense to be taken into account by the contractors.

Borrow Pits.

The location of the principal borrow pits, as listed by the Engineer's Report, are correct. We beg, however, to call attention that practically all of the borrowed material on section 1, for the Currituck Branch, was hauled from this Cape Henry borrow pit, and because of inability to operate electric cars through Haynes Avenue the haul must be from the fourteen-mile post, on the North Electric Line, via Cape

Henry, Virginia Beach to Euclid, to point where the Currituck Branch leaves the Electric Line; this would aggregate a haul of 19.4 miles. The material for filling roadbed for about eleven miles of the Belhaven Branch and a large percentage of the Columbia Branch was hauled from Mackeys Ferry, making an average haul of 15 miles on Belhaven Branch and 10 miles on the Columbia Branch.

Pay Methods and Prices.

As to the method of figuring pay quantities, the report is correct, in that the work on the Norfolk Southern has been generally done on the one-way basis. On some contracts, however, overhaul was allowed. It is stated that where overhaul was included, due consideration has been given in fixing prices; special mention is made of the contract with J. G. White & Co. for construction on our Raleigh-Washington line. By examination of these contracts and the unit prices paid, it will be found that for this portion of the line, from Washington to Zebulon, twenty-three cents per cubic yard is allowed, and from Zebulon to Raleigh, twenty-five cents is allowed for handling clay, sand and loam, forty cents (40 cents) for loose rock, seventy cents for solid rock. The prices actually paid to contractors in 1907 between Raleigh and Zebulon was twenty-five cents for common excavation, forty cents for loose rock and eighty cents for solid rock. The above prices were based upon the furnishing free by the railroad company the use of its existing tracks without charge. For the balance of this line, between Washington and Zebulon, the company actually paid under the contract, as partial payments, twenty-one cents for common excavation; thirty cents for loose rock; seventy-five cents for solid rock; overhaul was paid for at one cent per hundred feet per yard after three hundred feet free haul. In addition to these prices, a sum of \$90,000 for the seventy-nine miles was paid, which amount would add approximately ten cents per yard for every yard of material handled on this work. This would make the cost of common excavation on this line thirty-one cents; loose rock, forty cents, and solid rock eighty-five cents. It appears that due consideration has not been given to these actual costs, and that

if, in fixing the prices, overhaul allowances were added, the basic price was entirely too low, hence all prices for grading are too low.

Grading.

The report figures are said to be based on information in reference to construction on this and similar lines for work done several years ago, since which time labor has advanced from \$1.00 per day to \$1.25 and \$1.75 per day. The cost of maintenance of teams has increased twenty-five to fifty per cent.; skilled labor has increased twenty-five to fifty per cent., and due consideration must be given to the difficulties in reaching points for working steam shovels. The unit prices mentioned in the contract on which these prices seem to have been based are always exceeded. There are many items of extra cost that would frequently raise the unit price from four to eight cents per cubic yard. This company has paid for common excavation prices varying from twenty-five cents between Raleigh and Zebulon to thirty-one cents between Zebulon and Washington, and thirty-three cents between Mackeys Ferry and Plymouth. Based on cost of work on this company's lines under conditions prevailing, unit prices paid and contractor's testimony, in connection with the lines between Mt. Gilead and Charlotte, we believe that for common excavation on the Northern construction district the price of not less than thirty cents per yard should be allowed. On the Central district nothing less than the following prices should be allowed:

For common excavation.....	31 cents.
For loose rock.....	45 cents.
For solid rock.....	80 cents.

These prices are based on the contract prices and actual cost of construction on these lines. Much of the work in rock cuts on the West Central and Western Divisions cost the contractors considerably more money than they received. Sworn testimonies of the contractor have indicated that some of the solid rock cost more than \$1.00 a yard; it does not appear that due consideration has been given to the excess cost of construction over and above contract prices. For instance, the extras on

PRESIDENTS' CONFERENCE COMMITTEE FEDERAL VALUATION

937 COMMERCIAL TRUST BUILDING,
PHILADELPHIA, PA., August 8, 1916.

In order that the text of Mr. Nicholson's comments on the report of the Norfolk Southern road may be complete, I would be glad if you would insert at the middle of page 9 of the report before the sub-heading "Ballast" the attached printed slip, which was unintentionally omitted in printing these comments.

H. C. PHILLIPS,
Assistant General Secretary.

In many of the swamps and river bottoms, through which this company's lines pass, it was necessary to construct log and brush corduroy, or mattress, to support the roadbed. The engineers have estimated a price for this mattress of 2 cents to 14 cents per lineal foot; this appears to be an error, as our experience has taught us that these mattresses cannot be constructed for this price. We, however, have no contract prices, that would give actual costs on this work, as practically all of such work was done by force account. One dollar (\$1.00) per lineal foot would, however, be very much nearer the correct figure. The probabilities are that the engineers intended to figure the square feet rather than the lineal feet. These mattresses are on the average fifty feet in width, and of the length of track through the swamp. It is assumed in the report, that the contractor will build the corduroy mattress and include this in his unit price for grading. This is seldom, if ever, done in the district through which this company's lines operate, and should it be done by the contractor, he would probably increase his unit price, and the price allowed for excavation is not sufficient to absorb these excesses.

grading on the line between Mt. Gilead and Charlotte aggregate about four cents for each yard of material handled, and, in addition to this, the court award to the contractor, by reason of there being more rock in the cuts than that upon which the contractor based his average cost for unclassified material, increased the price per cubic yard for all material by five cents. On the Western Division the contractor bid forty-six cents for unclassified material; this work actually cost the railroad company fifty-five cents per yard unclassified. To reimburse the railroad company for money actually expended in the construction of this line, the prices must be thirty-six cents for common excavation, fifty cents for loose rock and eighty-five cents for solid rock. Based on these costs and comparisons with the unit prices used in the Report, it appears due allowance has not been given for contractor's profits. Work of this character is generally let to general contracting concerns, and they in turn sublet; thus the profit to the sub-contractor and general contractor must be added to the actual cost of work. Our belief is that in arriving at unit prices on this company's line most careful consideration should be given to actual cost because their conditions are peculiar, and costs on other lines would not necessarily be the same.

Ballast.

The ballast quantities, as obtained by measurement, are not sufficient to cover the actual material used. This material, after it has been deposited and tamped in position, would not be accurately shown by measurement in place. The solidification, by reason of the traffic that has passed over, has very materially reduced the cross-section, and at least twenty-five to thirty per cent. should be added to the figured quantities to obtain the actual quantities. We do not believe ten per cent. will cover the shrinkage.

Loss and Waste.

The allowance made for loss and wastes, track spikes, bolts, nutlocks and bars, are, we believe, entirely too low. These percentages should be materially increased, the more accurate allowance being ten per cent. for spikes, five per cent. for nutlocks, and three per cent. for angle bars, five per cent. for tie plates, five per cent. for bolts and one per cent. for rails.

Shrinkage.

It is stated that an allowance of ten per cent. has been added to materials to cover shrinkage. It must be remembered that this is simply ordinary shrinkage allowance and does not take in consideration the losses to the new roadbed and the expense of maintaining same, until the roadbed has become firm and the outer surface has become protected by growth, which is the present condition of most of the roadbed on the Norfolk Southern Railroad.

Within the time allowed we have been unable to check the actual quantities to ascertain whether the proper subsidence has been allowed in places where subsidence was pronounced; they were, however, pointed out and agreed upon in the field. It will be necessary for us also to check up the hidden quantities to ascertain whether anything has been overlooked.

Account No. 3—Clearing and Grubbing.

The amounts allowed for clearing and grubbing, forty dollars for clearing, and sixty dollars for grubbing, are based on prices paid on this company's lines. It must, however, be recognized that in the past these costs have been underestimated. The contractors are now realizing the necessity for closer figures on these items, and our belief is that in this cost of reproduction fifty dollars should be used for clearing on this company's lines. The average price, sixty dollars per acre for grubbing through the entire system, would even up to what would be a fair price.

Sodding.

No allowances appear to have been made for sodding; practically all of this company's roadbed has vegetation growing and well rooted, which forms a valuable protection to the roadbed. To get the roadbed in this condition has cost this company considerable money in the maintenance of roadbed, the encouragement of growth and trimming. To reproduce this natural growth would cost at least one cent per square foot.

Account No. 6. Pipe.

Prices applied to cast-iron culvert pipe is in accord with contract prices prevailing on this company's lines. Prices

for vitrified pipe appear to be the price of pipe plus the cost of handling plus the freight charges, but does not appear to include the cost of hauling to, and placing under, the roadbed. The cost to haul pipe and place in the work is practically equivalent to the cost of the pipe delivered at distribution point; nearly 100 per cent. should be added to the prices that have been assigned for vitrified pipe. The prices assigned to corrugated iron pipe are very much less than this company has been able to contract for such work. It appears that the prices do not include the cost of hauling from supply yards to site of work and placing in the work; for instance, the price assigned to twelve-inch pipe, in place, is sixty-three cents; this company has contracted this work at price of one dollar per foot and twenty-four-inch pipe is priced at \$1.24, whereas the Norfolk Southern pays \$2 per foot; thirty-six-inch pipe is priced at \$2.22, Norfolk Southern has paid \$7 per foot. It appears that no allowance has been made for handling, hauling and placing of the pipe.

These prices, as quoted in the text of the Engineers' Report, are based on price f. o. b. cars Greensboro, to which is added freight from and through delivery point, and price for unloading, storing and handling.

It is stated that the culvert pipe will be removed from construction yard to direct point of installation. It appears that this cost of handling from storage yard to point of installation and the cost of installation has been omitted.

Trestle Timber.

With reference to the prices for trestle timber and piles, it is stated that the price includes delivery f. o. b. cars junction point, cost of work-train service to site of installation, etc. It must be remembered that many of the trestles will, of necessity, be built prior to the laying of the track rails, otherwise the work will be seriously delayed, and the hauling by wagons of this material will cost considerably more than that by work trains. The materials for the larger trestles, crossing the estuaries along the Atlantic coast, from Norfolk to Washington and New Bern, cannot all be delivered by boat direct to the site of the work. The depth of the water at the inlets

and in the Core and Croatan Sounds will not permit of ocean-going vessels entering, bearing the timber and piles from southern points. During the construction of these trestles it was found necessary to transport the greater portion of the lumber by rail to points of use. This will increase the unit cost and should be figured upon the piles and timber, for all of the trestle timbers used in the Northern construction district must, of necessity, be shipped from points south; the timber is heart cypress and long-leaf yellow pine, none of which can be found within the boundaries of this construction district.

On the Central District a very small quantity of this class of timber can be obtained.

On the Western District practically all of the pine timber must be shipped for construction purposes; some of the oak timber and piles could be obtained on this line. All creosoted piles must be obtained from points beyond Norfolk, sent to Norfolk for treatment, and from that point distributed to point of use; there are no creosoting plants on the line other than at Norfolk, Va. Because of the distant points from which the piles must be obtained the allowance of forty-five cents per foot under cut-off is not sufficient. This company paid, in its construction between Mt. Gilead and Charlotte, fifty cents per foot, and between Varina and Colon forty to fifty cents per foot. Creosoted piles, with fourteen pounds of oil, were to cost sixty cents per foot. The average price paid for creosoted piles f. o. b. Norfolk, for lines west of Raleigh, was twenty-eight cents per lineal foot f. o. b. cars creosoting plant Norfolk; adding to this cost for driving, regular freight charges over other lines, and cost of unloading at site of work, would bring the cost of these piles up to sixty cents without any profit being added for contractor, or accounting allowance for waste.

Based on our experience and the cost of work done by this company, in which many of these piles were used, we believe the price of sixty cents per foot to be too low to pay actual costs, and ask that this be increased to sixty-five cents for piles treated with fourteen pounds of oil, which are used in fresh water up in the high lands, and to seventy-five cents per foot where

sixteen to twenty pounds of oil are used in salt water infested with tredo. Price of fifty cents per foot under cut-off should be allowed for untreated piles in all construction districts. The price of thirty-eight dollars allowed for untreated oak timber isn't sufficient to cover the cost; we find that very little, if any, difference is made in the contract prices for either long-leaf pine or white oak.

MASONRY.

The price for all masonry for which it has been applied is too low; it must be noted that, stone suitable for concrete can be found at very few places on this company's lines. These prices would apply to some concrete masonry built under favorable conditions, but would not apply to a large number of cases where the places are inaccessible, requiring hauling of materials over country roads by wagons, and where difficulty is encountered in building, forming, holding back water, quick-sands, etc., which excess cost would not be covered by the allowed cost for wet excavation. The cost of forming does not appear to have been figured into these unit prices. Work has been done on the Norfolk Southern for these prices and at times even less, but we have paid considerable in excess of these prices at times, especially on the Albemarle Sound Bridge. Price paid for concrete for the Scherzer Draw for foundation was, for

1 : 3 : 5 Mixture.....	\$10.00
1 : 1 : 2 Mixture.....	16.00

We believe that the prices assigned should be increased, should be not less than—

\$10.50 for Class "A" Concrete 1 : 2 : 4 Mixture
9.50 for Class "B" Concrete 1 : 3 : 5 Mixture
12.00 for Class "C" Concrete 1 : 1 : 2 Mixture

In reinforced concrete the price should be twelve dollars plus the reinforcement and cost of placing. It must be borne in mind that the Norfolk Southern facilities were given to contractors

on all of this work, which enabled them to make a much lower price than could be obtained if the entire road was to be reconstructed as is now contemplated.

Dry Excavations.

The price of eighty cents for dry excavation in bridge foundations is an average price. This company, has paid, however, one dollar per cubic yard for such work and it appears to be a generally recognized price for such work in this vicinity.

Wet Excavations.

The wet excavation will cost \$2.50 per yard.

On the Northern construction district quicksands would be encountered in nearly all foundations that went three to four feet below the surface of the ground. This excavation would be expensive and any contractor aware of conditions would not bid less than \$2.50.

Bridge Steel.

The prices assigned to bridge steel for plate girder, deck bridges, viaducts, etc., are from 3.4 cents to 3.7 cents; appears to have been made up from a study of bids received by the Norfolk Southern for work on its new lines. Recognition, however, has not been given to the fact that there was an added expense to the railroad company, by reason of its agreement to handle free of cost, the bridges from point of delivery on its line to the site of the work with its own work trains, as the company was doing the track-laying; neither does it include the cost assessed the Norfolk Southern Railroad Company for demurrage on cars held with bridge material awaiting track-laying to the bridge sites. This happened in nearly every instance and allowance should be made to cover these contingencies. These contingencies would amount to at least one-half cent per pound. We believe that the price for plate girder bridges should be four cents per pound, whereas four cents per pound has been used for rivet truss bridges. Four and one-half cents should be the prevailing price. The price of five cents per pound has been assigned for the steel in the Scherzer Rolling Lift Bridge, in the Albe-

marle Sound, and eleven cents for machinery; a price of 3.4 cents has been assigned to small drawbridge and eleven cents for machinery and 3.7 cents per pound for five-plate girder through bridges. These prices are less than the amounts actually paid by the railroad company to the contractors. To these prices should be added the freight charges from Norfolk to the site of the bridge, which would increase the assigned prices to at least four cents for the plate girders, and five and one-half cents for the Scherzer bridge. The machinery for the operation of these drawbridges would cost at least fifteen cents per pound, whereas only eleven cents has been assigned.

CROSSTIES.

We note that the Report states that the price for cross-ties was based on a study of prices paid by the Norfolk Southern Railroad Company for six years prior to June 30, 1914, and that these prices were tabulated and the trend of prices worked up and a composite normal price for all classes of ties secured, to which was added freight in case of ties that could not be secured locally. It was stated that to these prices were added one cent per tie for inspection, and two cents per tie for handling at yards. In the case of treated ties, price of forty cents is assumed for treatment, and to the original cost is added one and one-half cents for unloading and handling at the treating plant.

The reproduction of this railroad is assumed to be during 1912, 1913, 1914; the average price paid for ties by the Norfolk Southern Railroad, delivered on the right of way, was 46.6 cents; practically all of the ties thus secured were purchased on the Central or Western Divisions, oak ties being purchased along the line of the road and the pine ties being shipped in from other lines and delivered to the Norfolk Southern at junction points; if to these prices were added your figures of one cent for inspection, two cents for handling at yards, the price for ties on the Western and Central Divisions would be 49.6 cents, whereas forty-eight cents was actually paid for ties during the construction period, to which should be added one

and one-half cents for inspection, two cents for handling, making fifty-one and one-half cents.

As to the ties for the Northern Division, all of the ties required for this work must be secured at points other than along the line of the road, and be shipped to Norfolk, Suffolk, Plymouth and Washington for distribution. The price of these ties delivered, would not be less than fifty-two cents; to this, should be added not less than one and one-half cent for inspection, and two cents for handling in yards; the aggregate price of cross-ties for the northern district, should be not less than fifty-five and one-half cents. The Norfolk Southern has a large number of creosoted ties in use, on its northern district. The Engineer's Report states, that they have assumed an average of forty cents per tie for treatment; this is a fair average. The ties necessary for treatment could not be secured, delivered at Norfolk creosoting plant, for less than forty-five cents; to this base, should be added one and one-half cents for inspection, one and one-half cents for unloading and handling in the yard, and one cent for reloading and forty cents for treatment, which makes price of eighty-nine and one-half cents per tie f. o. b. cars creosoting plant. These plants are not located on the Norfolk Southern Railroad line, and there will be a further charge for transportation and a charge for handling, in the railway supply yards, convenient to work trains; the additional cost would be one cent per tie for switching charges, two cents for handling in the railway supply yard; therefore, the price for creosoted ties on the northern district, should not be less than ninety-two cents per tie. During construction, many ties are lost or destroyed, due to lack of care on the part of construction forces; are burned and washed away during freshets; are frequently used for cribbing of soft places, without allowance being made therefor; are used in foundations for temporary structures and temporary tracks, and left by construction forces, and by various other causes, many ties are lost during construction periods. In the Engineers' inventories, no count is taken of this, and the actual count of ties multiplied by a unit price, does not represent the cost to the railroad; an allowance of not less than five per cent. should be added to cover the above-mentioned contingencies.

Bridge Ties, Etc.

Bridge ties, guard rails and bracing on trestles have always been contracted for by this company under the general price per thousand feet, for trestle work, the same rate per thousand feet being applied. While the initial cost of the timber is less than that of the heavy timbers, the cost of framing is greater, and the unit price applied to other bridge timber should be allowed. The allowance of \$17.50 per thousand is not in accord with contracts on this line.

Switch Timber.

No allowance has been made for waste and loss in switch timber; an amount equal to at least five per cent. should be allowed.

Account No. 9. Rail.

It is stated that the reproduction price of rails f. o. b. cars Sparrow's Point and Steelton was furnished by the Central Bureau. These prices would, of necessity, during the assumed construction period, be \$28 for Bessemer rail and \$30 for Open Hearth. The allowance made for the rails delivered at receiving yards is for Bessemer \$31.73, for Open Hearth \$33.73; this price is applied for all divisions, and it is also stated that rails for the northern and eastern portions of the Central Division would originate at Sparrow's Point, and for the Western and West Central Divisions would originate at Steelton, Pa. The Bessemer rail delivered at Norfolk in yards would cost \$29.75, and the Open Hearth \$31.75; to this must be added the cost of hauling. For rails delivered at Plymouth and Washington, N. C., the cost would be \$31.65 for Bessemer rail and \$33.65 for Open Hearth, and for delivery at Goldsboro would be \$33.15 for Bessemer and \$35.15 for Open Hearth. It appears, therefore, that the average price of \$31.73 for the entire Northern Division is too low. For rails west of Wilson, N. C., which it is estimated will originate at Steelton, the cost at all delivery points, between Wilson and Mt. Gilead, for Bessemer is \$33.15 and for Open Hearth \$35.15 per ton. For rails west of Mt. Gilead, delivered at Norwood and Charlotte,

the cost for Bessemer rails would be \$33.65, and for Open Hearth \$35.65; it appears, therefore, that the assumption of the prices of \$31.73 for Bessemer and \$33.73 for Open Hearth on these lines are entirely too low; the rail could not be delivered at these prices. An average price of \$22.04 is allowed for rails on branch lines where this rail has been taken from the main line and laid on the branch lines.

We beg to call attention to the fact that this company has, in its entire history, bought very little relay rail; all of the rail on its branch lines now classed as relay rail is classed only from the point of fact that it was taken out of the main line and relaid on its branch line and could not be so classed because of condition of rail.

The Norfolk Southern secured its rails for branch lines and laying its side tracks by removing the sixty-pound rail from its main line and relaying with heavier rail, because of its having adopted seventy- and eighty-pound rails for its main tracks. In many instances the sixty-pound rail thus released was in perfect condition and had been in use for a very few years under light traffic; its condition was practically as good as new. We believe that under the conditions the price allowed for relay rail is \$3 to \$4 below the amount it should be if this rail must be classed as relayers; in fact, due to its condition it should be considered at new rail prices in the reproduction. For certain side-tracks an allowance of \$19 per ton is made for relay rail and this is probably due to the fact that the rail is not in very good condition and that a depreciation value has been applied. We call attention to the fact that depreciation is also figured on this rail and it appears that it has been twice depreciated in value. Relay rail prices shown on this company's books for leasing purposes are hereby arbitrary and do not necessarily represent values.

MEMO.

The new rail prices in the above have been based as follows:

Mill price for Open Hearth Rail per ton f. o. b. cars.....	\$30.00
Mill price for Bessemer Rail per ton f. o. b. cars.....	28.00
Inspection.....per ton.....	.05
Handling in yards.....per ton.....	.50
Freight by water to Norfolk.....per ton.....	1.20
Freight by rail Sparrow's Point to Plymouth and Washington.....per ton.....	3.10
Freight by rail Sparrow's Point to Goldsboro, per ton.....	4.60
Freight by rail Sparrow's Point to New Bern, per ton.....	3.35

Freight Steelton to Wilson	}per ton	4.60
Raleigh			
Varina			
Colon			
Aberdeen			
Asheboro	}per ton	5.10
to			
Norwood			
Charlotte			

Carload minimum 44,800 pounds, unless marked capacity is less, in which case the marked capacity of car will be minimum and in no case will minimum be less than 36,300 pounds.

Account No. 10. Other Track Materials.

A hasty study of this account appears to sustain the unit prices adopted by the engineers. However, we do not believe that sufficient percentage has been allowed for the loss of bolts, spikes, bars, tie plates, nut-locks, etc.

For Track Spikes should be allowed.....	10%
For Nut-Locks should be allowed.....	5%
For Angle Bars should be allowed.....	3%
For Tie Plates should be allowed.....	5%
For Bolts should be allowed.....	5%
For Rails should be allowed.....	1%

Account No. 11. Ballast.

The following prices were allowed for ballast:

Cinders.....	25 cents
Sand.....	29 cents
Sand and clay.....	24 cents
Slate.....	29 cents
Shell.....	82 cents
Earth.....	18 cents

These figures are too low.

Cinder ballast used on this company's lines was largely produced by the line; however, in the reproduction it would be necessary to purchase these cinders; they are a commodity in demand for use in making concrete, paving, etc., and providing drainage to foundations, and have a marketable value. This company found it necessary to purchase cinders at several points, and we paid eighty cents to one dollar per yard, delivered on cars at the railroad. If these cinders were to be purchased it would be necessary to not only pay a purchase price of at least forty cents per yard, but freight charges must be added to the point of delivery. The price of cinder ballast delivered to the railroad should be not less than sixty cents per yard. The sand ballast in use, on much of the Norfolk Southern Railroad, was hauled from long distances.

The source of supply for sand on the Northern construction district was Cape Henry, Northwest, Sandy Cross, Mackeys Ferry and Plymouth. Property was purchased for this purpose, and in some cases the sand was bought, the fee in the property being retained by the original owner. Tracks had to be constructed into the sand pits, which tracks have long since been removed. Near Cape Henry, where sand was secured the railroad does not own the property, and for general filling purposes the contractor, for handling this sand, secured about forty cents per yard. The railroad using what is called "dirty sand," unfit for concrete purposes, secured the material f. o. b. cars its tracks at twenty-five cents per yard; this, because of the existence of the railroad and its maintenance of the tracks entering the pit. Sand delivered from this point should carry with it price of forty cents, charged by the contractor, for sand delivered at Norfolk.

The average price allowed for oyster shell ballast is too low; if purchased at the date of valuation, would cost f. o. b. cars eighty cents per yard, plus freight charges to material yards.

The slate ballast, for which twenty-nine cents is allowed, should carry with it the price allowed for cinders, as it must be purchased from the outside loaded on cars. Because of the use of cinders and oyster shells for ballast, this company having on its line approximately seventy-one miles of track ballasted with shells, it would be impossible to carry on the ballasting closely behind the track-laying; in fact, it would not be good practice to ballast the track on new roadbed with oyster shells. It would be much more preferable to use sand to form a base and use the track in this way until the roadbed has become more solid. The unit price for ballast f. o. b. cars delivery points, is generally too low. The quantities, we note, have only ten per cent. added to the actual measurements to provide for shrinkage. We do not believe this sufficient for ballast; at least twenty-five per cent. should be added, in order that quantities may be more equal to material actually used.

Account No. 12. Track-laying and Surfacing.

Seven hundred dollars (\$700) for main line rail sixty-five pounds and over; five hundred dollars (\$500) for sixty pounds and under. It is possible to contract for track-laying and the rough surfacing for this price per mile; the result is the track not ready for operation—hardly suitable for work train service. Before track has reached the condition for regular train service, at schedule speed, it has to be raised three to four times. The cost of this surfacing will more than equal the allowance made for track-laying and surfacing. The labor cost on the new construction to this company, chargeable to track-laying and surfacing, which includes the labor loading and distributing the sandy ballast material and placing it under the track, aggregates about \$2200 per mile; most of the material used was secured at convenient points along the line of the road. This work was done by the company's forces, and did not include any contractor's profits, which should be allowed in the reconstruction problem.

In addition to these charges, the company found it necessary to maintain extra large track forces on the new construction for more than a year after the road was put in operation for schedule trains.

We note that the track-laying and surfacing has been depreciated, and the condition percentage is now shown as eighty-eight. This appears to be an impossible assumption. The maintenance on the track tends to improve rather than to depreciate, and condition percentage should be shown at least 100 per cent.; in fact, we claim that appreciation should be allowed, rather than depreciation made.

Account No. 15. Crossings and Signs.

Haven't sufficient time to check up. Price per cubic yard for concrete in overhead crossing bridges, at Raleigh, does not appear to include the forming. For extra work performed on these bridges, for which form was required, two dollars per cubic yard was charged by the contractor.

Attention is called to the omission of an overhead crossing installed by this company, carrying the Seaboard Air Line over its tracks at Suffolk. The abutment walls are of granite, with steel bridge spanning the opening. We claim this structure should be inventoried to the Norfolk Southern Railroad.

Accounts Nos. 16-17. Buildings.

We find, in hasty examination, that paving has not been allowed at the Water Street Freight Station (Norfolk). The company, at its expense, paved in front of this freight station and driveways on both sides; a large portion of these driveways are on the railroad property and cost of the paving amounted to \$2322.29. This should be included.

Account No. 18. Water Stations.

The prices applied to quantities for water stations, that we have been able to check, namely, those west of Raleigh, which are of most recent construction, indicate that the unit prices applied are for materials only and do not include the cost of erection, nor is any allowance made for painting of

these structures. The amount of concrete figured in a number of the foundations is much less than would be indicated by the minimum allowance on the plans under which these were constructed. We desire time to go more into the details in order to determine whether there are any other omissions. It also appears that no allowance has been made for handling the material on the company's lines from point of delivery to site of erection. These prices for tanks, supports, etc., have been compared very closely with prices actually paid, with the above-described result.

Account No. 19. Fuel Stations.

Fuel stations have been figured for reproduction per cubic foot, which gives approximately the cost of erection of these structures under favorable conditions; however, water was encountered at Charlotte, N. C., necessitating pumping and water-proofing of the pit, which added several thousand dollars to the cost, and this is not included in the reproduction.

At Edenton, N. C., quicksands were encountered, making it necessary that sheet piling be driven. This added very much to the cost, which has apparently not been taken into consideration.

Account No. 23. Wharves and Docks.

The prices for piles, thirty cents per lineal foot, under cut-off, is not sufficient. Heart pine piles cannot be purchased in the section in which these wharves are located and they must be hauled from long distances. The piles will cost f. o. b. Norfolk not less than twenty cents per foot; with allowance for handling, driving, cutting off to proper level, pulling in line, etc., and contractor's profits, the price should not be less than forty-five cents per foot. For treated piles in this section, where we have wharves and docks, not less than sixteen pounds treatment is required, except possibly at Norfolk Harbor, where fourteen pounds can be used. The price of creosoted piles f. o. b. creosoting plant would be twenty-eight cents, and this price, together with cost of handling in material yard, inspection, driving, pulling in line and cutting off, would bring the price of

creosoted piles to fifty cents per foot, to which should be added freight charges in transporting to point of use.

Dredging.

We do not find dredging allowed in Norfolk Harbor at any point other than at our Water Street Station, at which point twenty cents allowance per cubic yard is made. This allowance is unreasonably low, and could not possibly be based on full knowledge of conditions. The property, into which this dock is dredged, was high ground, on which were located several brick warehouses, with stone foundations supported on piles; all of this material had to be removed under the head of dredging and the lowest bid the company has been able to obtain for this work was eighty cents per cubic yard; it could not be done for any less sum in the reproduction, so it is very evident that twenty cents per cubic yard is an insufficient allowance; this material had to be taken out and hauled to the Government dumping ground with scows.

No allowance is made for dredging on the Berkley side of the river, where the company has transfer slips, wharves and docks for handling house scows, and where it has a lumber dock over 100 feet in width and 800 feet in depth. In all of these docks and in front of the wharves, dredging was done at the company's expense. This dredging should be taken in account and allowance made for dredging of the small slips in front of the docks and at the transfer slip at the rate of thirty-five cents per cubic yard. The dredging of soft material from the lumber dock slip could probably be handled for less money; probably twenty-five cents would cover the charge. It must be remembered that all of the material must be hauled to the Government dumping grounds.

We find that dredging has been omitted at several other points, and where dredging has been allowed the price is too low, considering the conditions under which it has to be done.

At some of these points it is impossible to get local dredging machines, and heavy costs are encountered in hauling dredging machines from source of supply to site of work, which adds very materially to the cost of the dredging.

We recently had some work done at New Bern, N. C., which cost us fifty cents per cubic yard, because of these conditions.

At practically all of the points where dredging is required, other than at Norfolk, the bottoms of the sound and rivers are covered with old cypress stumps and roots, which cause contractors to bid high on all such work.

Account No. 26. Telegraph and Telephone Lines.

We have been unable to check the details, therefore have no comments to make at this time.

Account No. 2. Land.

In the absence of detailed statements, it is impossible for us to determine wherein the discrepancies lie. We, however, made a very earnest effort in our co-operation with the Land Department, to avoid any difference. All of the quantities, both rural and urban lands, were checked and the areas of various parcels were made to conform in our records to the records of the Government. The investigation, made with the view to the ascertainment of naked land values of adjacent property, both by records of sales and opinions, were strictly in line with the Government's methods; in fact, in many instances, the same records were examined, the same sales values were given and opinions were gotten from the same parties. Our understanding was that there was practically no difference between the result of our investigation and that of the Government. Whereas, in studying the quantities exhibited in the report, we find a very great variation in quantities and values, which we are at a loss to account for.

For land owned and used for carrier purposes in Virginia and North Carolina, under Class 1, the Land Department shows a total area of 9280.172 acres, valued at \$1,990,844.28, whereas this company's records indicate that in Class 1 there are 10,100.687, with a total value, measured by the naked land values of adjacent lands, of \$4,111,309.84, a discrepancy in acres of 820.515, with a value discrepancy of \$2,120,465.56.

For Class No. 2 the Government figures are 2338.943 acres, a value of \$588,899.93, and the railroad totals are 2456.753 acres, with a value measured by naked land value of adjacent

lands equal to \$1,388,442.02, a difference in acres of 117.81, and a value equivalent to \$799,542.09; thus resulting, by combining the two classes, Nos. 1 and 2, in a difference amounting to 938.325 acres, with a value of \$2,920,007.65.

As to Class No. 4—Lands Non-Carrier, the Government's figures aggregate 2264.442 acres, valued at \$440,970.66, whereas the railroad records show 2775.445 acres, with a value, measured by the naked land values of adjacent lands, of \$572,525.42; there being a difference of 511.003 acres, with a value of \$131,554.76.

As to the Aids, Gifts and Grants, we note that the Government has placed within this class 3293.503 acres, equal, by their estimates, in value \$412,537.08. The railroad's classification under this heading shows only 2509.407 acres.

It is stated in the text of the report that the schedules filed by the railroad were of some assistance, but were incomplete, in that they did not contain all of the lands, the deeds to which recited only nominal considerations. In this connection we advise that we carefully reviewed all of the deeds as recorded on Forms D. V. 107, and where it was not thought that the consideration mentioned in the deed was a fair price for the property at the time of its purchase, we listed them under the heads of Aids, Gifts, Grants, etc., and, therefore, claim that our list is complete. We, however, claim, based on the information furnished to the Government, in connection with Valuation Order No. 16, in which we recited the conditions under which 158 pieces of property were secured, the deeds to which mentioned a nominal consideration, the aggregate cost being only \$163, and our records showed that the actual consideration for this property was \$11,215.24; these coupled with our experience in such matters on the Norfolk Southern Railroad indicate that simply because a nominal consideration is mentioned in the deed, it is not an indication, and should not be accepted as such, that the property was a gift to the railroad company. The owner should have the benefit of the doubt.

We note on page 5, No. 3, of the text of the report, that it is stated that the non-carrier list was submitted to the

carrier for criticism and classification discussed with the Carrier Report. We understood that these classifications were agreed upon, but basing criticism upon the report, our belief is that the agreement has not been adhered to.

On page 5, No. 7, it is stated that the areas of zones were ascertained by the computer and checked with the original tracing, and are, in practically all instances, agreed upon with the carrier. We have previously stated that these agreements were had, but if we are to accept the report, they have not been adhered to. The desire of the carrier is to check the details making up this report, with its records, in order to determine wherein the discrepancies lie. We have not had sufficient time since the receipt of the report to do this. We note that the railroad company's interests in streets, alleys, highways, beds of navigable streams, etc., are not represented by the land section, but that these matters are to be handled under ordinance and franchises, which report has not been received.

Signals and Interlocking.

Under this account no mention is made of this company's interests in interlocking plants at Tidewater Junction or Carolina Junction, on which this company pays interest on the proportion of the cost, which matter has already been reported to the engineers on the Valuation Division. No mention is made of crossing and interlocking with the Foreman-Blades Lumber Company at Elizabeth City, N. C. This crossing and signal was installed and is owned by the Norfolk Southern Railroad Company.

With reference to the Accounts:

- 31.—Power Transmission Systems,
- 37.—Roadway Machines,
- 38.—Roadway Small Tools,
- 44.—Shop Machinery,
- 51.—Steam Locomotives,
- 52.—Other Locomotives,
- 53.—Freight Cars and Work Equipment,
- 54.—Passenger Train Cars,
- 55.—Motor Equipment,

56.—Floating Equipment,

57.—Work Equipment,

we are unable, within the time allotted, to check these accounts either as to quantities or prices. This will, however, be done at the earliest possible date.

Account No. 1. Engineering.

The report has allowed for engineering, on the three construction districts, four per cent. on Accounts 3 to 46, inclusive, exclusive of Accounts 39, 40, 41 and 42. There is little or no Government data based on surveys, to be obtained, for territory between Raleigh and Charlotte. When the Norfolk Southern undertook its extensions to Charlotte, and the linking of the new lines purchased, by the construction of road from Varina to Colon, it was found that complete surveys had to be made, embracing all the section of the country between Raleigh and Colon, through Wake and Chatham Counties, and the surveys had to be made with Troy, N. C., as the base, embracing counties of Montgomery, Stanley, Cabarrus and Mecklenburg, going as far north as Concord and Albermarle. These investigations and surveys developed the fact, that the construction of road from Troy to Albermarle and Concord were more expensive than it was thought the traffic would justify, and the line was therefore dropped further south, until the present location was reached. If the work was again contemplated and the owners were of the same opinion prevailing at the time this road was constructed, exactly similar lines of procedure would be necessary. The cost of making these surveys, in order to develop the lines to be constructed, and meet conditions imposed, within the amount believed to be justified, by the estimated traffic and the engineering cost, in connection with construction on these lines, was for the line between Varina and Colon 4.67 per cent.; surveys from Mt. Gilead to Charlotte amounted to 5.73 per cent. It, therefore, appears that an allowance equal to five per cent. of the total cost embraced in Accounts 3 to 46, inclusive, would be required in this district, and that at no part of the line should the cost show less than \$750 per mile. It also appears that for the checking of plans, the inspection and other expense in connec-

tion with purchase of equipment, that at least two per cent. should be added to Accounts 51 to 58. There should likewise be added to Account No. 2, Lands for Transportation Purposes, a percentage to cover the salaries and expenses of right-of-way agents, and other cost, other than law expenses in connection therewith.

General Expenses.

This company has no records that will enable us to determine the proper percentages to be allowed on all accounts to cover general expenditures. It is noted, however, in the report, that the study of the Winston-Salem Southbound Railroad records show that 1.2 per cent. of all Accounts 1 to 58, inclusive, (excepting Accounts 2, 39, 40, 41, 42 and 47), was developed. to apply to Accounts 71 to 77 inclusive, (excepting Account 76). It is not thought that the Winston-Salem Southbound records are complete in this respect as the two operating roads constructing this line furnished general service without charge, and more complete investigation would reveal that this cost had reached a much higher percentage.

We cannot understand why Account No. 2 was omitted. Considerable time is spent during the first year in the promotion, in studying the country and securing land, options, right-of-ways, etc., and which could hardly be charged off in a percentage of cost, to right-of-way, by parcels, and unless the percentage is added under "General Expenditures" to cover these expenses, it does not appear that an account will be taken thereof.

Account No. 76. Interests During Construction.

As to Account No. 76—Interest During Construction. It is noted that interest is figured at six per cent. for one-half the construction period. We believe that the interest should be figured for a much longer period; money must be secured in advance and it is considered good policy to arrange for providing funds, for estimated expenses for one entire year in advance. Assuming that the work could be completed in two years, as estimated in the report, the interest should be figured on the money necessary to secure for the first year's work for the entire two years; for the second year, the interest should be

figured on the money secured for the second year's work, for the one year. If the longer period of time was required, it is expected that the same methods should be used. We see no reason why Account No. 2 should be omitted in figuring interest. One of the first expenditures made, is for rights-of-way; no benefit is derived from this by the railroad until the road is actually placed in operation; interest should, therefore, be allowed on Account No. 2, from the time money is secured for such purposes until completion of the road. The same principle would apply to all of the Accounts 51 to 77.

Depreciation.

Our viewpoint in reference to depreciation is so different from that estimated in the report that it is hard to make comparison. The chief basis for their depreciation is an estimated total life of the property. The fact that timber bridges and trestles can be maintained indefinitely seems to have been lost sight of. A structure inspected at any particular time may require timber renewals, and if, because of these required repairs, the structure is depreciated, and, as is often done, the material is replaced with new, within a few days after the inspection, it is evident that there is a permanent loss to the property which cannot be in any way replaced, as the maintenance repairs are not permitted to be charged to capital account. The maintenance of trestles and culverts on this company's lines is adequate to provide for service for an indefinite period. Of course, if property has depreciated beyond requirements, for a year's maintenance, and thus there is found deferred maintenance, some account may be taken of this, but if the condition is such that one year's maintenance will bring the structures up to one hundred per cent., it should be so accounted.

If the depreciation method adopted is to be used, it means a great and permanent loss to the carrier and destruction of capital expenditures that cannot be returned to the investors. It is claimed that any structure maintained up to the standard required by the specifications and traffic conditions should be considered one hundred per cent. structures. The main-

tenance required on any structure at the time of the inspection does not affect the value of the structure to the property, provided it is in such physical condition as to properly and safely carry the traffic pertaining thereto. The report shows no depreciation on grading, but it does not take into account the fact that the grading is subject to appreciation. There is no question whatever, that a solidified embankment, made so by long years of use is much more valuable than a new roadbed, the maintenance of which for a number of years is considerable drain on the resources of the company. Due to continued settlements, the necessity for hauling in additional material, to maintain the tracks to grade, and to maintain the embankments to full width of roadbed, adds to the cost.

In frame trestles, piles are generally depreciated in the report, and we claim that such depreciation could occur only above the water line, and that the percentage that is figured off, as depreciation, is in reality maintenance requirements and should not be figured. If done so it would result in a percentage loss to the railroad company in values that cannot be replaced, although the piles to which exception is taken may be replaced with timber on the day following that of the inspection. There could, of course, be no depreciation of the piles below the water level. We note, also, that piles have been depreciated in foundation; this is, of course, based on a theoretical service-life table, which is not applicable to the situation. Piles driven in foundations cut off below water line do not depreciate; their life is indefinite. Piles taken out of the water on this company's lines are known to have been in existence for nearly one hundred years.

Depreciation has been made on cast-iron culvert pipe. It is not clear to us as to why cast-iron culvert pipe should depreciate. Its use under railroad embankments has not been of sufficient duration to permit forming any definite conclusions as to its service life.

Depreciation Cross-ties and Rails.

The report has depreciated cross-ties fifty per cent., and new rails as much as fifty-six per cent. The actual conditions do not justify such figures, inaccurate results are obtained by the

methods adopted, which result in large losses in values; we protest against the methods adopted and results obtained.

Track-Laying and Surfacing.

It is not clear to us as to why track-laying and surfacing has been depreciated. The cost for track-laying and surfacing is assumed to be sufficient to place the road in condition it was found at the time of the Government inspection. The service condition assumed is seventy-seven per cent. Our belief is that it should be one hundred per cent. We have no information as to why this depreciation was made; it is certainly not supported by conditions. If any changes from one hundred per cent. condition for track-laying and surfacing were made it should rather be in the nature of appreciation, as under ordinary maintenance the track condition should improve.

In the depreciation of frame buildings, I understand the assumption is that a frame structure is good for fifty years with average maintenance. The railroads in all of their used structures maintain to a reasonably high standard, certainly a standard equal to that demanded by the service. The principal structures so maintained should be good for a much longer period; in fact, there are buildings along this company's lines now used for residences in various towns that have existed for more than one hundred years and are in reasonably good condition.

It is noted that no depreciation is figured on dredging, because the yardage of dredging is based on actual measurement of present conditions. This method was discussed and is satisfactory to us.

Account No. 44. Shop Machinery and Tools.

We note that for small roadway tools a flat depreciation of fifty per cent. is made; that for shop machinery average depreciation of thirty per cent. was made. We fear that in depreciating many of these machines an estimate of future obsolescence has been taken into consideration rather than the actual condition of machine on date of valuation.

Depreciation of Rolling Equipment.

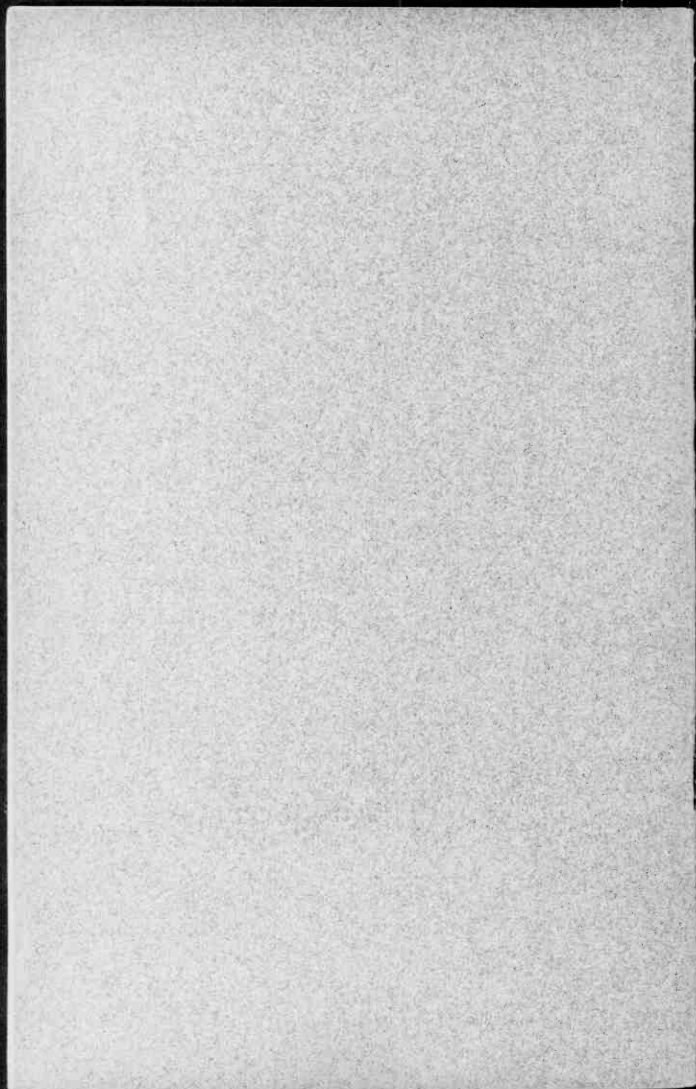
It is stated that the depreciation of rolling equipment was made in accordance with observation in the field. We have not had time to check over each individual locomotive or class of cars to ascertain whether the reproduction cost was reasonable, and to make investigations to ascertain as to conditions, in order to determine whether the reproduction cost less depreciation meets the conditions. We, however, investigated cost prices as to two principal classes of cars. Series 1540 to 1749, box cars purchased in 1906, the reproduction estimate is \$570, whereas these cars actually cost the railroad company \$663 each; for Series 4000 to 4599, purchased in 1907, the reproduction value in the report is \$750; these cars cost the company \$875 each.

The report states that prices of locomotives and cars were brought to normal as of June 30, 1914. By study of diagrams showing fluctuations of prices it will be seen that prices for 1914 were abnormally low, being the lowest price for ten years. Furthermore, if the reproduction of the Norfolk Southern Railroad is to be completed and placed in operation June 30, 1914, the equipment would certainly be contracted for in advance and the prices for 1913 would be more nearly correct. It is, therefore, reasonable to assume that a low reproduction value has been used in figuring the cost of all of this company's equipment, and time must be had to make a very thorough study of the matter.

Checking.

Since the receipt of the reports we have given them a hurried review, but have not had sufficient time to make a detailed checking either of quantities or extensions, we however noted, as might be expected, several clerical errors which point to the necessity for a carefully detailed review of all quantities, unit prices and extensions. Considering the amount of work to be done and its importance, considerable time will be required; we hope this necessity will be recognized by the Valuation Division and official action deferred to allow for such examination.

MSH 21309



**END OF
TITLE**